

CLIPPEDIMAGE= JP405153448A
PAT-NO: JP405153448A
DOCUMENT-IDENTIFIER: JP 05153448 A
TITLE: VIDEO CAMERA

PUBN-DATE: June 18, 1993

INVENTOR-INFORMATION:
NAME
MORITA, OSAMU

ASSIGNEE-INFORMATION:
NAME
CANON INC

COUNTRY
N/A

APPL-NO: JP03314435
APPL-DATE: November 28, 1991

INT-CL_(IPC): H04N005/225

ABSTRACT:

PURPOSE: To simply and accurately operate a switch with a small size and a light weight even when the number of operation switches is many in the video camera provided with a monitor displaying the picked-up video image.

CONSTITUTION: A monitor panel 3 opened/closed is provided to a side face of a video camera main body 1 and a monitor 4 displaying a video image is arranged in the inner face of the monitor panel 3. Furthermore, operation switches 121-137 used for recording, reproduction and edit are arranged on the monitor 4 of the monitor panel 3 and on the video camera main body 1 in its vicinity and other operation switch is arranged to the opposite side of the monitor 4 of the monitor panel.

COPYRIGHT: (C)1993,JPO&Japio

(19)日本国特許庁(J P)

(12) 公 開 特 許 公 報 (A)

(11)特許出願公開番号

特開平5-153448

(43)公開日 平成5年(1993)6月18日

(51)Int.Cl.⁸

H 0 4 N 5/225

識別記号

庁内整理番号

F I

技術表示箇所

F 9187-5C

審査請求 未請求 請求項の数4(全 4 頁)

(21)出願番号 特願平3-314435

(22)出願日 平成3年(1991)11月28日

(71)出願人 000001007

キヤノン株式会社

東京都大田区下丸子3丁目30番2号

(72)発明者 森田 攻

東京都大田区下丸子3丁目30番2号 キヤ
ノン株式会社内

(74)代理人 弁理士 丹羽 宏之 (外1名)

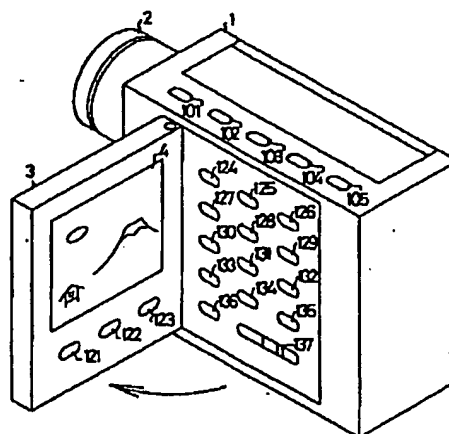
(54)【発明の名称】 ビデオカメラ

(57)【要約】

【目的】 撮影した映像を映し出すモニタを備えたビデオカメラにおいて、操作スイッチの数が多くても小形、軽量で、かつスイッチの操作を正確に簡単に行えるようにする。

【構成】 ビデオカメラ本体1の側面に開閉可能なモニタパネル3を設け、このモニタパネル3の内面に映像を映し出すモニタ4を配置する。また、モニタパネル3のモニタ4側とその近くのビデオカメラ本体1上に、記録、再生及び編集に使用する操作スイッチ121~137を配置し、その他の操作スイッチをモニタパネル3のモニタ4と反対側に配置する。

図1のモニタパネルが開いた状態



4.モニタ
121-137:操作スイッチ

【特許請求の範囲】

【請求項1】 撮影した映像を映し出すモニタを備えたビデオカメラにおいて、ビデオカメラ本体に外側に開閉可能なパネルを設け、このパネルが開かれた状態で前記映像が見えるようにモニタを配置すると共に、前記パネル上あるいは該パネルが開かれた状態で操作可能なビデオカメラ本体上の位置に各処理制御用の操作スイッチを配置したことを特徴とするビデオカメラ。

【請求項2】 パネルはビデオカメラ本体の側面に設け、このパネル上にモニタを設けたことを特徴とする請求項1記載のビデオカメラ。

【請求項3】 操作スイッチの中で記録時、再生時及び他の機器との編集作業時に使用するスイッチはパネル上のモニタ側に配置し、その他のスイッチはパネル上のモニタと反対側に配置したことを特徴とする請求項2記載のビデオカメラ。

【請求項4】 パネル上のモニタと反対側に配置されたスイッチは、パネルが開かれた状態で操作が無効になることを特徴とする請求項3記載のビデオカメラ。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、ビデオレコーダを有したビデオカメラ、特に撮影した映像を映し出すモニタを備えたビデオカメラに関するものである。

【0002】

【従来の技術】ビデオカメラは、近年この種の映像機器に付随する機能はユーザーの用途の多様化から年々増加する傾向にあり、回路の高集積化等の技術の向上がそれを可能としている。また、軽量化及び薄形短小化の傾向からこれらの映像機器は益々小形化、軽量化が図られて

【0003】

【発明が解決しようとする課題】しかしながら、従来のビデオカメラにあっては、上記のように機能が増加するとほぼそれに比例して操作スイッチの数が増加するが、小形化のためにそれらのスイッチを配置する面積が減少するので、スイッチの操作が複雑であり、また誤操作する恐れがあるという問題点があった。

【0004】すなわち、ビデオカメラ本体の小さいスペース上に多くの操作スイッチを配置する必要から、スイッチそのものも小形化され、特に大きな手のオペレータにとってはスイッチ操作がしづらいものとなる。特に多機能ビデオカメラでは、ある機能を働かせる時にはそれに対応したスイッチを操作する必要があるが、他の機能のスイッチも近くに配置されているので、操作に習熟するまではスイッチ操作を誤る可能性がある。

【0005】また操作スイッチには、シャッタースピード変更、オートフェード、デジタルタイトル録画を行うためのモード切換用のカメラ撮影記録時に操作するスイッチと、記録テープの再生、早送り、巻き戻し等を行う

ための再生時に操作するスイッチの他に、日付入れなどのモード設定や撮影準備のためのスイッチがあり、非常にスイッチの数が多く、操作が複雑である。

【0006】本発明は、上記のような問題点に着目してなされたもので、小形、軽量で、しかもスイッチの操作が正確にかつ簡単に行えるビデオカメラを得ることを目的としている。

【0007】

【課題を解決するための手段】本発明のビデオカメラは、撮影した映像を映し出すモニタを備え、ビデオカメラ本体に外側に開閉可能なパネルを設け、このパネルが開かれた状態で前記映像が見えるようにモニタを配置すると共に、前記パネル上あるいは該パネルが開かれた状態で操作可能なビデオカメラ本体上の位置に各処理制御用の操作スイッチを配置したものである。

【0008】また、上記パネルはビデオカメラ本体の側面に設け、このパネル上にモニタを設けるようにし、操作スイッチの中で記録時、再生時及び他の機器との編集作業時に使用するスイッチはパネル上のモニタ側に配置し、その他のスイッチはパネル上のモニタと反対側に配置するようにしたものであり、さらに、パネル上のモニタと反対側に配置されたスイッチは、パネルが開かれた状態で操作が無効になるようにしたものである。

【0009】

【作用】本発明のビデオカメラにおいては、ビデオカメラ本体に開閉可能なパネルが設けられており、このパネルが開かれた時にモニタが現れて映像を見ることが出来る。また、そのパネル上あるいは該パネルが開かれた状態で操作可能なビデオカメラ本体上の位置に各処理制御用の操作スイッチが配置されるので、小さいスペースを効率よく使用でき、スイッチの操作も簡単になる。

【0010】

【実施例】以下、本明細書では、カメラ一体型VTRを例にとり、説明する。

【0011】図1は本発明の一実施例によるビデオカメラの概略構成を示す斜視図である。図において、1はビデオカメラ本体、2は撮影用のビデオレンズ、3はビデオカメラ本体1の側面に設けられたモニタパネルで、外側に開閉可能となっている。101～105はビデオカメラ本体1の上面に配置された各処理制御用の操作スイッチ、106～120はモニタパネル3の外面に配置された同処理制御用の操作スイッチである。

【0012】図2は上記モニタパネル3を矢印の如く外側に開いた状態を示したものである。このモニタパネル3が開かれた状態で、ビデオレンズ2を通して撮影した映像が見えるように、該パネル3上にモニタ4が配置されている。また、モニタパネル3の内面にも同様の操作スイッチ121～123が配置され、さらにこのパネル3が開かれた状態で操作可能なビデオカメラ本体1上の位置にも操作スイッチ124～137が配置されてい

る。

【0013】ここで、上記各操作スイッチの中で、モニタパネル3上のモニタ4側に配置されたスイッチ121～123及び図2のモニタパネル3が開かれた状態で現われるビデオカメラ本体1上のスイッチ124～137は記録時、再生時及び他の機器との編集作業時に使用する操作スイッチであり、図1のモニタパネル3上のモニタ4と反対側（裏側）に配置されたスイッチ106～120はそれ以外の他の目的に使用する操作スイッチである。そして、モニタパネル3の外面のスイッチ106～120は、モニタパネル3が開かれた状態で操作が無効となる。

【0014】上記構成のビデオカメラは、ビデオカメラ本体1内部に撮像素子、信号処理回路、記録回路等が備えられており、ビデオレンズ2を通して撮影した映像をビデオテープに記録すると共に、モニタパネル3上のモニタ4に映し出せるようになっている。その際、操作する人は、カメラ撮影記録時にはモニタ4を見ながらその近くに配置されたスイッチ121～137を操作することで、容易に撮影記録中のモード切換えを行うことができ、例えばシャッタースピードの変更、フェードインやフェードアウト、デジタルタイトル録画を行うことができる。

【0015】また、カメラ撮影記録時、再生時及び編集時に使用しないスイッチ、あるいは使用すると誤動作する恐れのあるスイッチはモニタパネル3のモニタ4と反対側の面に配置されているので、誤ってこれらのスイッチを操作してしまうことがなく、正確かつ簡単にスイッチ操作を行うことができる。

【0016】さらに、モニタパネル3が開かれると、これらのスイッチ106～120の使用が禁止され、例えばこれらのスイッチ106～120が押されても動作しないようになっているので、誤りなくカメラ記録撮影や編集作業を行うことができる。

【0017】このように、見開き式のモニタパネル3上のモニタ4に対して、記録、再生、編集時の操作スイッチは近くに配置し、その他の操作スイッチはモニタ4と反対側に配置しているので、スイッチの操作が正確かつ簡単に行えたと共に、小さいスペースを有効に利用してスイッチの配置を行うことができ、小形、軽量なものとする事ができる。

【0018】図3は本発明の他の実施例を示す斜視図であり、図1と同一符号は同一構成部分を示している。図

中、141～160はモニタパネル3の外面に配置された操作スイッチで、これらのスイッチ141～160はカメラ撮影記録時や再生時あるいは編集時には使用しないスイッチである。

【0019】図4は上記モニタパネル3を開いた状態を示したもので、モニタパネル3の内面には映像を映し出すモニタ4が設けられ、またこの状態で操作可能に現れる操作スイッチ161～180がビデオカメラ本体1に配置されている。

【0020】本実施例は、モニタパネル3が図4のように上下に開閉できるようにしたものであり、このモニタパネル3が開かれた状態で操作できるスイッチ161～180は、撮影記録時、再生時、及び複数のビデオカメラを用いての編集作業時等にのみ使用するスイッチとなっている。したがって、前述の実施例と同様、モニタ3を見ながらスイッチ操作による目的の作業を正確かつ簡単に行うことができる。また、上記作業に関係のないスイッチ141～160はモニタ4の反対側に配置されているので、誤って操作することがなくなり、前述の実施例と同様の作用効果が得られる。

【0021】

【発明の効果】以上のように、本発明によれば、本体に外側に開閉可能なパネルを設け、このパネルが開かれた状態で映像が見えるようにモニタを配置し、このパネル上あるいは該パネルが開かれた状態で操作可能な本体上の位置に各操作スイッチを配置するようにしたため、小さなスペースを有効に利用でき、小形、軽量で、しかもスイッチの操作が正確かつ簡単に行えるという効果がある。

【図面の簡単な説明】

【図1】 本発明の一実施例を示す斜視図

【図2】 図1のモニタパネルが開かれた状態を示す斜視図

【図3】 本発明の他の実施例を示す斜視図

【図4】 図3のモニタパネルが開かれた状態を示す斜視図

【符号の説明】

1 ビデオカメラ本体

2 ビデオレンズ

3 モニタパネル

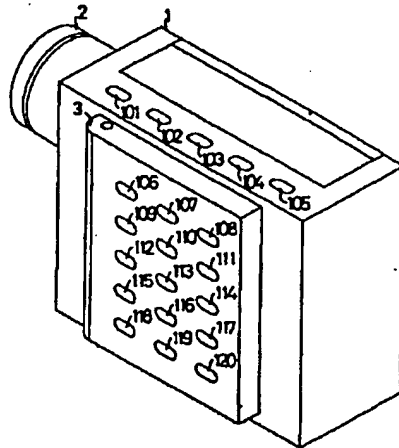
4 モニタ

101～137 操作スイッチ

141～180 操作スイッチ

【図1】

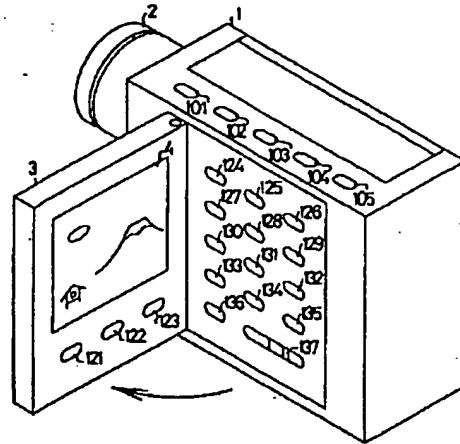
本発明の一実施例の概略構成



1:ビデオカメラ本体
2:ビデオレンズ
3:モニタパネル
101~120:操作スイッチ

【図2】

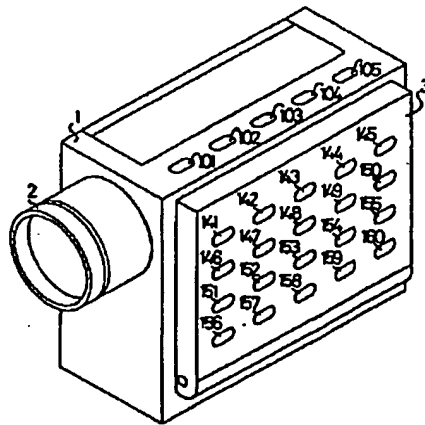
図1のモニタパネルが開かれた状態



4:モニタ
121~137:操作スイッチ

【図3】

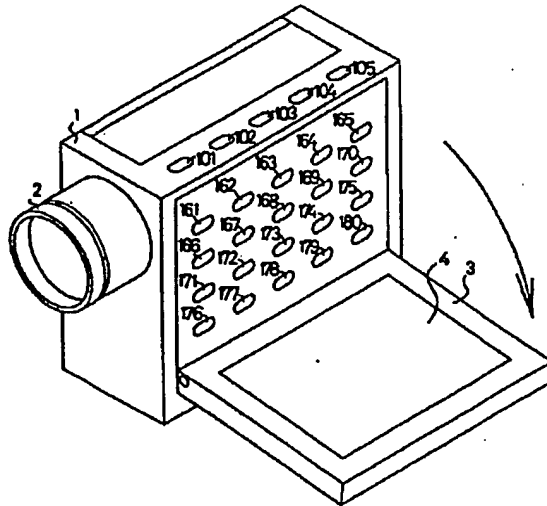
本発明の他の実施例の概略構成



141~160:操作スイッチ

【図4】

図3のモニタパネルが開かれた状態



161~180:操作スイッチ

(19) Japanese Patent Office (JP)
(12) Official Gazette of Unexamined Patent Applications (A)

(11) Patent Application Publication No: 5-153448
(43) Patent Application Publication Date: June 18, 1993

(51) Int. Cl. ⁵	Identification Code	Internal File Nos.
H 04 N 5/225	F	9187-5C

Request for Examination: Not yet received
Number of Claims: 4 (Total of 4 Pages)

(21) Patent Application No: 3-314435

(22) Patent Application Date: November 28, 1991

(71) Applicant: 000001007
Canon Corporation
3-20-2, Shimomaruko, Ota-ku, Tokyo

(72) Inventor: Osamu MORITA
Canon Corporation
3-20-2, Shimomaruko, Ota-ku, Tokyo

(74) Agent: Hiroyuki NIWA, Patent Attorney (and 1 other)

(54) [Title of the Invention] Video Camera

(57) [Abstract]

[Purpose] To allow for the simple and accurate operation of control buttons on a compact and lightweight video camera with a built-in monitor for viewing captured video images even when there are a number of control buttons.

[Constitution] A monitor panel 3 that can be opened and closed is attached to the side of the main body 1 of the video camera, and a monitor 4 for viewing video images is situated inside the monitor panel 3. The control buttons 121-137 used to record, playback and edit video images are located inside on the monitor panel 3 or on the main body 1 of the video camera near the monitor 4, and the other control buttons are arranged on the outside of the monitor panel 3 opposite the monitor 4.

A view of the camera in FIG 1 with the monitor panel open.

4: monitor

121 ~ 137: control buttons

[Claims]

[Claim 1] In a video camera equipped with a monitor for viewing captured video images, a panel that can be opened and closed is attached to the outside of the main body of the video camera, a monitor is situated inside the panel for viewing captured video images when the panel is open, and the control buttons used to record, playback and edit video

images are located inside on the panel or on the main body of the video camera enabling the control buttons to be operated when the panel is open.

[Claim 2] The video camera in claim 1, wherein a panel is located on the side of the main body of the video camera, and wherein a monitor is situated on the panel.

[Claim 3] The video camera in claim 2, wherein the control buttons used to record, playback and edit video images with another device are located inside on the monitor panel and the other control buttons are arranged on the outside of the monitor panel opposite the monitor.

[Claim 4] The video camera in claim 3, wherein the control buttons arranged on the outside of the monitor panel opposite the monitor are inoperative when the panel is open.

[Detailed Description of the Invention]

[0001]

[Industrial Field of Application] The present invention relates to a video camera with a video recorder and, more specifically, to a video camera with a monitor for viewing captured video images.

[0002]

[Prior Art] In recent years, video cameras have become more diverse to meet different consumer needs with new functions added to various kinds of video recording devices. There have also been technological improvements such as the large-scale integration of circuits. In addition, video camera have become smaller, thinner and lighter.

[0003]

[Problem Solved by the Invention] Unfortunately, the number of control buttons has increased with each new added function. The size and spacing of the buttons have also become smaller as video cameras have become smaller and more compact. This has made the control buttons more difficult to use and has increased the likelihood of mistakes.

[0004] In other words, the need to place more control buttons on smaller video cameras has led to smaller buttons that are more difficult for operators to use. In multiple function video cameras, the buttons for various functions have to be operated in real time. Because buttons for other functions are located nearby, the operator is likely to make mistakes until he or she has become proficient at using the camera.

[0005] The control buttons include buttons used during the recording process such as shutter speed buttons, fade out buttons, digital title buttons and other mode switching buttons, buttons used during the playback process such as the play button, the fast forward button and the rewind button, and setting buttons such as date and time buttons and mode setting buttons. As a result, there is a large number of buttons and these buttons are difficult to operate.

[0006] In light of this problem, the purpose of the present invention is to allow for the simple and accurate operation of control buttons on a compact and lightweight video camera.

[0007]

[Means of Solving the Problem] The present invention is a video camera equipped with a monitor for viewing captured video images, in which a panel that can be opened and closed is attached to the outside of the main body of the video camera, a monitor is situated inside the panel for viewing captured video images when the panel is open, and the control buttons used to record, playback and edit video images are located inside on the panel or on the main body of the video camera enabling the control buttons to be operated when the panel is open.

[0008] The present invention is also a video camera, in which a panel is located on the side of the main body of the video camera and a monitor is situated on the panel, in which the control buttons used to record, playback and edit video images with another device are located inside on the monitor panel or on the main body of the video camera near the monitor and the other control buttons are arranged on the outside of the monitor panel opposite the monitor, and in which the control buttons arranged on the outside of the monitor panel opposite the monitor do not work when the panel is open.

[0009]

[Operation] In the video camera of the present invention, a panel that can be opened and closed is situated on the main body of the video camera, and the images captured by the video camera can be viewed when the panel is open. Because the buttons used to control the video camera are located inside on the panel or on the main body of the video camera enabling the control buttons to be operated when the panel is open, the small space is utilized efficiently and the buttons are easy to operate.

[0010]

[Working Examples] The following is an explanation of the present invention with reference to working examples. Here, the working examples are video tape recorders integrated with cameras.

[0011] FIG 1 is a simplified drawing of the video camera in a working example of the present invention. In this figure, 1 is the main body of the video camera, 2 is the video lens, and 3 is the monitor panel on the side of the main body 1 of the video camera. The monitor panel can be opened and closed to the outside. Here, 101~105 are the control buttons on the main body 1 of the video camera, and 106~120 are the control buttons on the outside surface of the monitor panel 3.

[0012] FIG 2 shows the monitor panel 3 being opened to the outside in the direction of the arrow. When the monitor panel 3 is open, the monitor 4 on the panel 3 can be used to view video images captured through the video lens 2. Here, control buttons 121~123 are arranged on the inside surface of the monitor panel 3, and control buttons 124~137

that can be operated when the panel 3 is open are arranged on the inside surface of the main body 1 of the video camera.

[0013] In this working example, the control buttons for recording, playing back and editing video images with another device are control buttons 121~123 on the monitor panel 3 next to the monitor 4, and control buttons 124~137 on the side of the main body 1 of the video camera when the monitor panel 3 is open as shown in FIG 2. The control buttons 106~120 on the outside of the monitor panel 3 opposite the monitor 4 are used for other purposes. When the monitor panel 3 is open, the control buttons 106~120 on the outside of the monitor panel 3 are inoperative.

[0014] A video camera with this configuration is equipped with photographic elements, signal processing circuits, and recording circuits inside the main body 1. Images captured by the video lens 2 are recorded on videotape and viewed on the monitor 4 inside the monitor panel 3. A person viewing the monitor 4 and operating the control buttons 121~137 near the monitor 4 while photographing and recording images can easily switch modes, change the shutter speed, fade in, fade out and create digital titles.

[0015] Because the control buttons not used to record, play back and edit video images and the control buttons likely to cause mistakes during use are located on the outside of the monitor panel 3 opposite the monitor 4 where they are unlikely to cause a recording error, the control buttons are simpler to use and more likely to be used correctly.

[0016] Because these control buttons 106~120 are not used when the monitor panel 3 is open and the control buttons 106~120 do not operate when the monitor panel 3 is open even when pressed, image recording and editing can be performed error free.

[0017] Because the control buttons used to record, play back and edit video images are located near the monitor 4 on the monitor panel 3, which is viewed without a sight, and the other control buttons are located on the outside surface of the monitor panel 3 opposite the monitor 4, the control buttons are simpler to use and more likely to be used correctly. Also, the arrangement of the control buttons uses the small space efficiently and allows for the creation of smaller and lighter video cameras.

[0018] FIG 3 is a simplified drawing of another working example of the present invention. Here, the components identical to those in FIG 1 are denoted by the same numbers. In this figure, control buttons 141~160 are located on the outside surface of the monitor panel 3. These control buttons 141~160 are not used to record, play back and edit video images.

[0019] FIG 4 shows the monitor panel 3 when opened. A monitor 4 is located on the inside surface of the monitor panel 3 for viewing images, and the control buttons 161~180 used to operate the device when the panel is open are located on the main body 1 of the video camera.

[0020] In this working example, the monitor panel 3 opens and closes up and down as shown in FIG 4. When the monitor panel 3 is open, only control buttons 161~180 are used to record, play back and edit video images. As a result, the control buttons in this

working example can be used easily and correctly while viewing the monitor 3. Because the control buttons 141~160 unrelated to these operations are located on the side opposite the monitor 4, mistakes are unlikely to occur and the effect is the same as the other working example.

[0021]

[Effect of the Invention] In the video camera of the present invention, a panel that can be opened and closed is situated on the main body of the video camera, and the images captured by the video camera can be viewed when the panel is open. Because the buttons used to control the video camera are located inside on the panel or on the main body of the video camera enabling the control buttons to be operated when the panel is open, the small space is utilized efficiently, the camera is compact and lightweight, and the buttons are easy to operate.

[Brief Explanation of the Drawings]

[FIG 1] A simplified drawing of a working example of the present invention.

[FIG 2] A view of the camera in FIG 1 with the monitor panel open.

[FIG 3] A simplified drawing of another working example of the present invention.

[FIG 4] A view of the camera in FIG 3 with the monitor panel open.

[Key to the Drawings]

1: main body of the video camera

2: video lens

3: monitor panel

4: monitor

101~137: control buttons

141~180: control buttons

[FIG 1] A simplified drawing of a working example of the present invention.

1: main body of the video camera

2: video lens

3: monitor panel

101~120: control buttons

[FIG 2] A view of the camera in FIG 1 with the monitor panel open.

4: monitor

121~137: control buttons

[FIG 3] A simplified drawing of another working example of the present invention.

141~160: control buttons

[FIG 4] A view of the camera in FIG 3 with the monitor panel open.

161~180: control buttons

PTO 2004-1452

Japan Kokai

Japanese Patent Publication

Publication No.: 5 - 153448

VIDEO CAMERA

(Bideo kamera)

Osamu Morita

UNITED STATES PATENT AND TRADEMARK OFFICE

Washington D.C.

January 2004

Translated by Schreiber Translations, Inc.

<u>Country</u>	:	Japan
<u>Document No.</u>	:	5-153448
<u>Document Type</u>	:	Patent Publication
<u>Language</u>	:	Japanese
<u>Inventor</u>	:	Osamu Morita
<u>Applicant</u>	:	Canon Corporation
<u>IPC</u>	:	H 04 N 5/225
<u>Application Date</u>	:	November 28, 1991
<u>Publication Date</u>	:	June 18, 1993
<u>Foreign Language Title</u>	:	Bideo Kamera
<u>English Title</u>	:	Video Camera

[Title of Invention] Video Camera

[Abstract]

[Purpose] To provide multiple switches in a video camera that is equipped with a monitor that can display the photographed images, the operation of these small operation switches can be performed correctly and easily with a light touch.

[Constitution] The monitor panel 3 that can open and close is provided on one side of the video camera main body 1. A monitor 4 is placed so the photographed image can be displayed inside this monitor panel 3. Also, there are operation switches 121 - 137 that are used for recording, reproduction and editing, these operation switches are arranged on video camera main body 1 close to the monitor 4 side of the monitor panel 3. Those operation switches are placed on the side facing the monitor 4 in the monitor panel 3.

The state of the monitor panel being opened is shown in figure 1

4: monitor

121-137: operation switch

[Scope of Patent Claims]

¹ the numbers in the margin indicate pagination in foreign text

[Claim 1] A video camera is characterized with a monitor panel that can open and close, this is provided on one side of the video camera main body. A monitor is placed so the photographed image can be displayed inside this monitor panel. The aforementioned image can be viewed at the state when this panel is opened. Also, there are operation switches that are used for controlling various processes, these operation switches are arranged on the video camera main body.

[Claim 2] The video camera stated in Claim 1 is characterized in that the panel is placed on one side of the video camera and a monitor is provided on this panel.

[Claim 3] The video camera stated in Claim 2 is characterized in that multiple switches are arranged on the panel at the monitor side, these switches are used for recording, reproduction and for editing purposes with other devices. These switches are provided on the panel facing the monitor.

[Claim 4] The switches in the video camera stated in Claim 3 is characterized as being arranged on the side of the panel facing the monitor, the operations are not affected at the state when the panel is opened.

[Detailed explanation of the invention]

[0001]

[Industrial field of use] The invention pertains to a video camera having a video recorder. In particular, it pertains to a

video camera that is equipped with a monitor that can output the photographed images.

[0002]

[Prior Art] In recent years, the demand for video camera having multiple functions have increased, the user can perform various types of processes in this type of video camera. The technology for this type of video camera have improved, like the circuits are highly integrated. Also, the demand is high for smaller and lighter devices so the tendency is to produce lighter and more compact video cameras.

[0003]

[The problems resolved by the invention] However, with the demand for more multiple functions in the conventional video camera, the number of operation switches have increased in equal proportions. However, since the video camera is made more compact, the surface area for arranging these switches has decreased and the operation for these switches becomes complicated. Also, there is the problem of erroneous operations.

[0004] That is, since multiple operation switches must be arranged on a small space on the video camera main body, the size of the switches becomes smaller. In particular, it becomes difficult for the operator to operate the operation switches. In particular, in a video camera with multiple functions, the

switch must be operated according to the operation of a certain function but since the switch is placed close to the switch of another function, the probability of touching the wrong switch for a certain operation is high.

[0005] Also, there are extremely high number of switches so the operation for the processes are complicated. For example, the switches that are operated during the camera recording in the mode conversion used for shutter speed conversion, auto feeding and digital title recording, the switches that are operated for the reproduction of the recording tape, for fast forwarding and rewinding and the switches that are operated to set the mode for recording such as the date and time of recording.

[0006] The purpose of the invention is to focus on the above problems and offer a video camera that is light and compact and the operation of the switches can be performed correctly and easily.

[0007]

[Means for resolving the problems] The video camera of the invention is characterized with a monitor panel that can open and close, this is provided on one side of the video camera main body. A monitor is placed so the photographed image can be displayed inside this monitor panel. The aforementioned image can be viewed at the state when this panel is opened. Also, there are operation switches that are used for controlling

various processes, these operation switches are arranged on the video camera main body.

[0008] Also, the video camera is characterized in that a panel is placed on one side of the video camera and a monitor is provided on this panel. Multiple switches are arranged on the panel at the monitor side, these switches are used for recording, reproduction and for editing purposes with other devices. These switches are provided on the panel facing the monitor. The switches in the video camera are arranged on the side of the panel facing the monitor, the operations are not affected at the state when the panel is opened.

[0009]

[Action] A panel is provided in the video camera of the invention and this panel can be opened and closed in the video camera main body. When this panel is opened, the operator can view the monitor. Also, since the operation switches that are used for controlling each process are arranged in the video camera main body and can be operated at the state the panel is opened, the small space can be used effectively and the switches can be operated easily.

[0010]

[Implementation examples] The camera - type VTR is explained in the Specification according to the example shown below.

[0011] Figure 1 is the diagram showing the constitution of a video camera according to an implementation example of the invention. In the diagram, 1 is the video camera main body. 2 is video lens for image pickup. 3 is the monitor panel arranged on one side of the video camera body 1, it can close or open to the exterior side. 101 - 105 are the operation switches for controlling each process and they are arranged on the upper surface of the video camera main body 1. 106 - 120 are the operation switches for controlling the same processes and are arranged on the external side of the monitor panel 3.

[0012] Figure 2 is the diagram showing the state where the aforementioned monitor panel 3 is opened to the external side as shown in the direction of the arrow. At the state when this monitor panel 3 is opened, the photographed image can be viewed via the video camera lens 2, the monitor 4 is placed on the said panel 3. Also, the operation switches 121 - 123 are arranged similarly on the inner surface of the monitor panel 3. In addition, the operation switches 124 - 137 are arranged at a certain position on the video camera main body 1 so they can be operated and this is at the state where the panel 3 is opened.

/3

[0013] Here, among the aforementioned operation switches, there are the switches 121 - 123 that are arranged on the monitor 4 side at the monitor panel 3 and the switches 124 - 137 on the

video camera main body 1 that be seen at the state when the monitor panel 3 is opened as shown in figure 2, these are the operation switches that are used during recording, reproduction and during the editing operation with other devices. There are the other switches 106 - 120 that are arranged on the opposite side (the bottom side) of the monitor 4 on the monitor panel 3 of figure 1 and these are the operation switches for other purposes. Then, the switches 106 - 120 on the external surface of the monitor panel 3 do not affect the operations at the state when the monitor panel 3 is opened.

[0014] The video camera having the above constitution is provided with an image pickup element, a signal processing circuit, a recording circuit that are provided inside the video camera main body 1. The image pick up via the video lens 2 is recorded in the video tape and the image is projected on the monitor 4 of the monitor panel 3. Then, the person operating the video camera operates the switches 121 - 137 placed close together and views the monitor 4 during the camera images recording, the mode conversion can be performed easily during the image recording process. For example, the modification of the shutter speed, the feed in and feed out, the digital title recording, all these can be performed easily.

[0015] Also, since the switches used for the camera image recording, the reproduction and editing are not operated, error

operation is not likely and since these switches are arranged on the side facing the monitor 4 of the monitor panel 3, the switches will not be operated in error so the switch operation can be performed correctly and easily.

[0016] In addition, when the monitor panel 3 is opened, the use of these switches 106 - 120 can be prohibited. For example, since these switches 106 - 120 are not pressed or activated, the camera recording the pictures and the editing operation can be prevented.

[0017] Thus, the operation switches for the recording process, the reproduction process and the editing process are arranged close together in the monitor 4 on the monitor panel 3 where the panel can be opened or closed. Since the operation switches are placed on the opposite side of the monitor 4, the operation of the switches can be performed correctly and easily. The positioning of the switches can be carried out effectively using only a small space. The video camera that is light weight and compact can be produced.

[0018] Figure 3 is the diagram showing another implementation example of the invention. The same symbols are used for the parts that are similar to those in figure 1. In the figure, the operation switches 141 - 160 are placed at the external surface of the monitor panel 3. These switches 141 - 160 are the

switches that are not used during the camera picture recording, the reproduction process and the editing process.

[0019] Figure 4 shows the state when the aforementioned monitor panel 3 is at the open state. The monitor 4 is provided inside the monitor panel 3 and the pickup images are projected on this monitor. Also, the operation switches 161 - 180 are operated in this state and these are arranged on the video camera main body 1.

[0020] In this implementation example, the monitor panel 3 can be opened and closed vertically as shown in figure 4. The switches 161 - 180 can be operated at the state where this monitor panel 3 is opened. The switch is used only during the editing operations when using the video camera during the image pickup recording, during reproduction, etc. Therefore, similar to the above implementation example, the target operation can be performed simply according to the switch operation while looking the monitor 3. Also, since the switches 141 - 160 having no relation to the above described operations are placed on the reverse side of the monitor 4, erroneous operation is not carried out. The same action effect as the aforementioned implementation example can be obtained.

[0021]

[Effect of invention] According to the invention as described above, the panel that can be opened and closed is placed on the

external side of the main body of the video camera. When this panel is at the open state, a monitor is arranged so the images can be viewed on the monitor. Since each operation switch can be arranged in its position on the main body so they can be operated in the opened state, the small space in the video camera can be used effectively. The operation of the switches can be performed correctly and easily in the light weight and compact video camera.

[Brief explanation of the diagrams]

[Figure 1] The diagram showing an example of the invention.

[Figure 2] The diagram showing the state where the monitor panel of figure 1 is in the open state.

[Figure 3] This is the diagram showing another implementation example of the invention.

[Figure 4] This is the diagram showing the state where the monitor panel of figure 3 is opened.

[Description of the symbols]

1 video camera main body

2 video lens

3 monitor panel

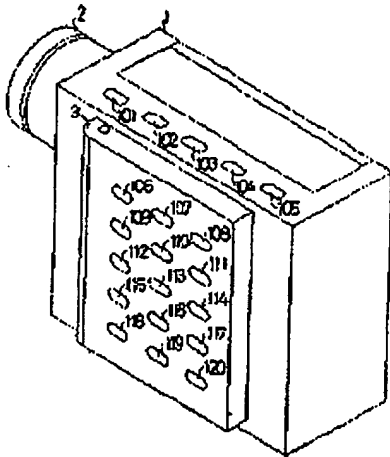
4 monitor

101 - 137 operation switches

141 - 180 operation switches

【図1】

本発明の一実施例の構成図



1:ビデオカメラ本体
2:ビデオレンズ
3:モニタパネル
101-120:操作スイッチ

[Figure 1]

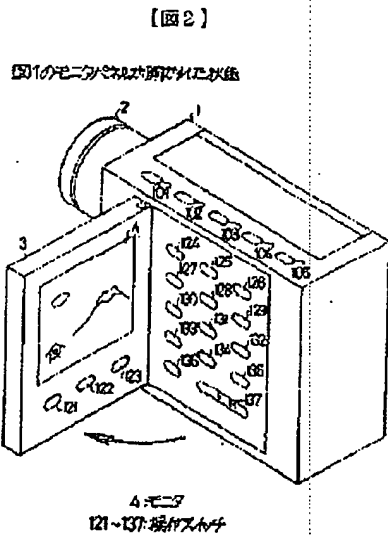
Constitution of an implementation example of the invention

1: video camera main body

2: video lens

3: monitor panel

101 - 120: operation switches

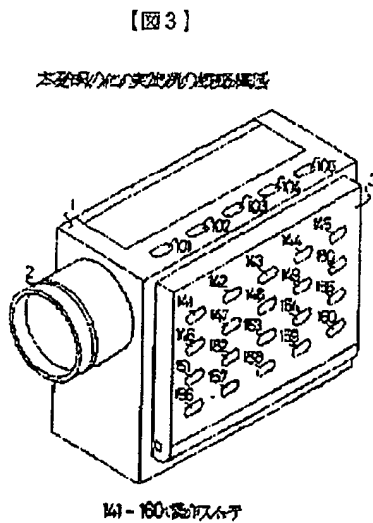


[Figure 2]

Open state of the monitor panel shown in figure 1

4: monitor

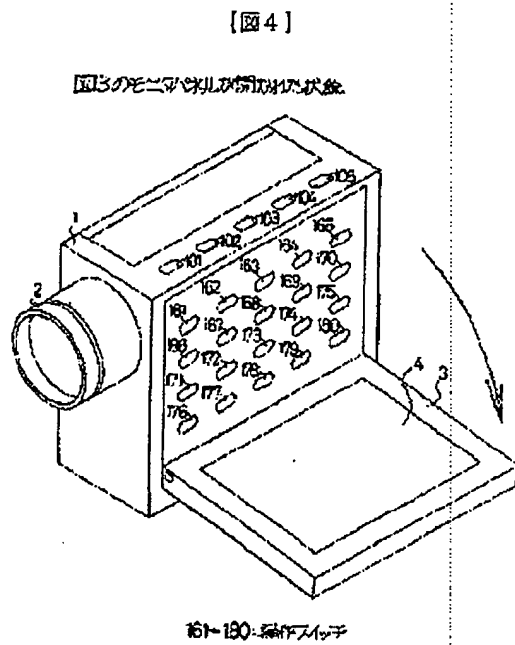
121 - 137: operation switches



[Figure 3]

A constitution of another implementation example of the invention

141 - 160: operation switches



[Figure 4]

The monitor panel of figure 3 is in the open state

161 - 180: operation switches